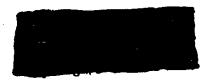
# Armstrong

330 Loch'n Green Trail Arlington, Texas 76012 817-275-2691 Fax: 817-275-1883 Andrew T. Armstrong, PhD John M. Corn, M9, RS Marion K. Armstrong, MSPH, CIH Scott J. Riley, DChem

August 22, 2000



Re: Flammable solids

# LABORATORY REPORT: A0GA3025

Four samples were received on August 2, 2000, for laboratory evaluation. The samples consisted of powdered silicon of four different particle sizes; Sample 1 =  $10\mu$ ; Sample 2 =  $20\mu$ ; Sample 3 =  $45\mu$  and Sample 4 = 200 mesh. The laboratory was requested to test the samples with regards to the criteria established in the "United Nations Recommendations on the Transport of Dangerous Goods". All samples were tested in accordance with "Test N.1: Test Method for Readily Combustible Solids."

The test parameters for metal powders were used. The established criteria for failure required that the sample burn or smolder at a rate of 1 millimeter per minute for 20 minutes. Results of these tests are found in Table 1. If a sample fails this test, further testing is required.

	Table 1	
Tes	N,1: Test Method for Readily Combustible Sol	ids
Sample	Observation	Pass/Fail
#1 <b>-</b> 10µ	No Smoke, Smoldering or Ignition	Pass
#2 - 20µ	No Smoke, Smoldering or Ignition	Pass
#3 - 40µ	No Smoke, Smoldering or Ignition	Pass
#4 - 200 mesh	No Smoke, Smoldering or Ignition	Pass



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Armstrong Forensic Laboratory, Inc. Report No: A0GA3025 Page 2 of 2

#### Summary:

Samples 1, 2, 3 and 4 passed Test N:1, Test Method for Readily Combustible Solids, the requested test, and are, therefore, not considered flammable solids.

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Respectfully submitted.
ARMSTRONG FORENSIC LABORATORY, INC.

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Andrew T. Armstrong, PhD, CPC Fellow, American Board of Criminalistics

AlHA Accreditation No; 363

AIMA ACCREDITATION NO. 30
AIMA ELLAP Accredited

Scott Jamieson Riley, D.Chem Industrial Chemist



# MATERIAL SAFETY DATA SHEET



SILICON POWDER CRYSTALLINE

HUMMEL CROTON INC. 10 HARMICH ROAD BUSINESS HRS.: 908-754-1800 SOUTH PLAINFIELD, NJ 07080

EMERGENCY PHONE NUMBERS
BUSINESS HRS.: 908-754-1800 CHEMTREC: 800-424-9300

# I. PRODUCT IDENTIFICATION:

PRODUCT NAME....:
Silicon Powder, Crystalline

CHEMICAL FAMILY....: Silicon Metal

CHEMICAL NAME . . . . : Siligon

SYNONYMS..... Silicon

CAS NUMBER..... 7440-21-3

FORMULA..... Si

# II. HAZARDOUS INGREDIENTS:

INGREDIENT NAME Silicon

CAS # : 7440-21-3

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http://www.hummelcroton.com/m\_si.html

10/24/2000

EXPOSURE LIMITS
OSHA:15 mg/m<sup>3</sup>
ACGIH:10 mg/m<sup>3</sup>

CONCENTRATION (%) 97-99 %

INGREDIENT NAME Iron Oxide Fume

CAS # : 7439-89-6

EXPOSURE LIMITS

OSHA: 10 mg/m<sup>3</sup>

ACGIH: 5 mg/m<sup>3</sup>

CONCENTRATION (%)

less than 1%

INGREDIENT NAME
Aluminum

CAS # : 7429-90-5

EXPOSURE LIMITS
OSHA:15 mg/m<sup>3</sup>
ACGIH:10 mg/m<sup>3</sup>

CONCENTRATION (%)
less than 1%

# III. PHYSICAL PROPERTIES:

PHYSICAL FORM POWDER
COLOR Silvery GRAY
ODOROdorless
MOLECULAR WEIGHT 28.08
A/N : Hq
EGILING POINT N/A
MELTING/FREEZING POINT: 1440°C
SOLUBILITY IN WATER: Insoluble
SPECIFIC GRAVITY 2.3
BULK DENSITY Not Established
VAPOR DENSITY
IV. FIRE AND EXPLOSION DATA:

FLASH POINT....:

Not Applicable.

AUTO-IGNITION TEMPERATURE .....:
Dust Layer Approx. 1650 R (900°C)

SPECIAL FIRE FIGHTING PROCEDURES:
Fire may also be isolated and allowed to burn itself out. Do not disturb burning metal while extinguishing the fire.

UNUSUAL FIRE / EXPLOSION HAZARDS:
Lump material is not combustible. When suspended in air, dusts of silicon metal can be readily ignited, propagate flame, and generate some pressure or explode. The degree of combustibility in air is dependent upon particle size, oxide coating, and quality of dispersion. The hazard increases with particle fineness. Avoid generating sparks or ignition sources in areas of high airborne dust levels or in areas with accumulated dust. Thoroughly clean areas or equipment to be maintained prior to dust disturbing or ignition source generation activities.

#### V. HUMAN HEALTH DATA:

ROUTE(S) OF ENTRY.....:

Eye Contact; Skin Contact; Inhalation;

Ingestion

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE SKIN CONTACT......

Skin contact may cause irritation with symptoms of redness, swelling, itching and pain.

ACUTE EYE CONTACT.....:

Eye contact may cause irritation with symptoms of redness, swelling, itching, tearing and pain.

effects may follow and may include ringing of the ears, dizziness, elevated blood pressure, blurred vision and tremors.

CHRONIC EFFECTS OF EXPOSURE. . . :

CARCINOGENICITY.

This product is not listed by NTP, IARC or regulated as a carcinogen by OSHA.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE..:

Persons with preexisting eye or skin

conditions or impaired pulmonary function may

be more susceptible to the effects of

this product.

#### VI. EMERGENCY AND FIRST AID PROCEDURES:

FIRST AID FOR EYES....:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

Call a physician.

FIRST AID FOR SKIN....:

In case of contact, flush skin with water.
Wash clothing before reuse. Call a physician
if irritation occurs.

FIRST AID FOR INHALATION:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Call a physician.

FIRST AID FOR INGESTION:

If swallowed, call a physician immediately.

#### VII. EMPLOYEE PROTECTION RECOMMENDATIONS:

EYE PROTECTION REQUIREMENTS.....:
Safety glasses or goggles.

SKIN PROTECTION REQUIREMENTS.....:

PVC gloves with impervious boots, apron or coveralls. Employees should wash their hands and face before eating, drinking or using tobacco products.

VENTILATION REQUIREMENTS.....:

Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.

ADDITIONAL PROTECTIVE MEASURES....:

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of hazardous chemicals.

#### VIII. REACTIVITY DATA:

STABILITY....:

Stable under ordinary conditions of use and storage.

HAZARDOUS POLYMERIZATION ...: Will not occur.

INSTABILITY CONDITIONS......
Excessive temperatures
(see INCOMPATIBILITIES).

DECOMPOSITION TEMPERATURE . .: N/A

DECOMPOSITION PRODUCTS....: N/A

#### IX. SPILL AND LEAK PROCEDURES:

SPILL OR LEAK PROCEDURES....:
Utilize recommended protective clothing and equipment. Clean spills in a manner that does not disperse dust into the air. Spill area can be washed with water. Collect wash water for approved disposal. Keep from entering water

or ground water.

WASTE DISPOSAL METHOD.....:
Waste disposal should be in accordance with
existing federal, state and local
environmental regulations.

# X. SPECIAL PRECAUTIONS & STORAGE DATA:

STORAGE TEMPERATURE (MIN/MAX): Ambient/Ambient.

SPECIAL SENSITIVITY.....: None

HANDLING/STORAGE PRECAUTIONS:
Avoid breathing dust. Avoid getting in eyes or on skin. Wash thoroughly after handling.
Store in a dry place away from direct sunlight, heat and incompatible materials (see Section VIII). Reseal containers immediately after use. Store away from food and beverages.

XI. SHIPPING INFORMATION:

. Contact Hummel Croton for current shipping Information

#### XII. TOXICITY DATA:

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS #: VW0400000

SILICON

IRRITATION DATA

EYE-RBT 3 MG MLD FAONAU 53A,21,74

TOXICITY DATA

ORL-RAT LD50:3160 MG/KG FAONAU 53A,21,74

Only selected registry of toxic effects of chemicals substances (RTECS) data is presented here. See actual entry in RTECS for complete information.

# XIII. REGULATORY INFORMATION:

of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA STATUS.....:
On TSCA Inventory

RCRA STATUS.....:

If discarded in its purchased form, this product would not be hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

40 CFR 261.20-24)

CALIFORNIA PROPOSITION 65.......

To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.

MOTTAMAGGAIL MARGORISE

Flammable & frritant

R 36/37/38 Irritating To Eyes, Respiratory System And Skin.

Highly Flammable

S 16 Keep Away From Sources 1 Of Ignition - No Smoking.

3 32 Take Precautionary Measures Against Static Discharges.

8 25 In Case Of Contact With Eyes, Rinse Emmediately With Plenty Of Water And Seek Medical Advice.

\$ 36/37/39 Wear Suitable Protective Clothing, Gloves And Eye/Face Protection.

XIV. ECOLOGICAL INFORMATION:

Data not available at the present time.

#### XV. APPROVALS:

REASON FOR ISSUE....:
Update to new format.

PREPARED BY..... Mark Dugan

APPROVED BY..... Mark Dugan

APPROVAL DATE ..... 11/22/96

WARRANTY



USE "EROWSER" OR SECONDARY MOUSE KEY TO RETURN TO PREVIOUS ENTRY PANEL !

E-Marl

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E Mail

hummel@earthlink net